



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,025	07/11/2003	Makoto Komatsu	2003-0950A	2714
513	7590	11/13/2006	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			ASINOVSKY, OLGA	
2033 K STREET N. W.				
SUITE 800			ART UNIT	
WASHINGTON, DC 20006-1021			PAPER NUMBER	
			1711	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/617,025

**Applicant(s)**

KOMATSU ET AL.

**Examiner**

Olga Asinovsky

**Art Unit**

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,12-14 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,12-14 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

Applicants amend claims 1, 6, 18, 19 and 21 by the definition: wherein the graft polymer chain has a reactive functional group, and wherein the reactive functional group is converted from an anion exchange group introduced onto the graft polymer side chain.

The new search has been done for a graft polymer side chain having reactive functional group wherein said functional group is converted from an anion exchange group.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6, 12-14 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calcaterra et al U.S. patent 4,810,567.

Calcaterra discloses graft copolymer having a base polymer in the form of fabrics or fibers (col. 5, line 46; col. 6, lines 41-56), for the present claim 2, and a grafting vinyl monomer containing at least one reactive functional group grafted onto a fabric material, col. 5, lines 48-52. The graft copolymer can be produced by irradiation or by a redox system, col. 7, lines 23-25, for the present claim 3. The graft polymerizable vinyl monomer forms a graft polymer side chain for the present claims. The grafted vinyl

Art Unit: 1711

monomer having a reactive functional group includes acrylonitrile, acrylamide, N-vinylphthalimide allylamine, 4-amino-1-butene, p-aminostyrene, 2-chloroethylvinyl ether, p-chloromethylstyrene, 1-chloro-5-hexeneone-2, col. 7, lines 6-20, for claims 1, 6, 18, 19 and 20. The grafted vinyl monomers represented by the structural unit  $C=C X$ , where X is a functional group such as a halogen, isocyanate or nitrile, col. 7, lines 1-3. These reactive functional groups have at least cyanide ion or nitrile ion, or chlorite ion. These reactive functional groups are readable in the present claims being anion functional groups. The functional group is capable to react or can be chemically converted to another functional group which reacts with a second functional group on an antibiotic, col. 6, lines 64-67. The claimed term "converted" is readable in the Calcaterra invention at col. 6, lines 64-67. The reaction of the functional groups on the graft copolymer with those of an antimicrobial agent is represented by scheme at col. 9, lines 30-52. The reactive functional group onto a graft polymer chain serves as a reagent for a second chemical reaction, for the present claim 4, col. 18, lines 38-45.

Calcaterra does not use term "solid reagent". However, the fabrics or fibers polymer backbones (col. 6, lines 41-55) are solid polymer materials. It would have been obvious to one of ordinary skill in the art to select graft polymerizable vinyl monomer having reactive functional group in Calcaterra invention wherein such group is an anion exchange group that is readable from the species in the present claims, and, thereby, obtain the claimed requirement. Selection of a halogen or nitrile anion reactive

Art Unit: 1711

functional group that can be converted to another functional group is a prima facie case of obviousness.

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-4, 6, 12-14, 18-21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-5 of U.S. Patent No. 6,703,432. Although the conflicting claims are not identical, they are not patentably distinct from each other because the chemical formulation of a grafted polymer having a polymer side chain having functional group in claims 1-5 of Patent 6,703,432 is readable in applicants' claims. The difference between the present claims and claims 1-5 of Patent 6,703,432 is the requirement in the present claims that a grafted polymer is a solid reagent. However, a polyolefin base backbone is in a solid form. It would have been obvious to one of ordinary skill in the art to consider that a water

Art Unit: 1711

adsorbing/desorbing material in claims 1-5 of Patent 6,703,432 is a reactive solid reagent, wherein the resulting polymer side chain has a hydrophilic functional group such as an anion exchange group which can react or can be converted to another functional group, see claim 3 in Patent 6,703,432.

2. Claims 1-4, 6, 12-14, 18-21 are rejected under 35 U.S.C. 103(a) as being obvious over Fujiwara et al U.S. Patent 6,703,432.

3. The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). See paragraph 5 above for the explanation. A starting compound is not claimed in the present claim 1. In addition, reference discloses a polymer side chain containing a hydrophilic group

Art Unit: 1711

grafted on the backbone of an organic polymer base, column 1, lines 65-67. A desired graft polymer side chain is introduced into an organic polymer base by irradiating the base, column 2, lines 43-63. The polymer base is woven/nonwoven fabric material. The polymerizable monomers have functional groups, column 3, lines 23-67. The hydrophilic reactive functional group can be selected such as anion exchange groups, col. 3, line 27. Anion exchange groups can be selected from quaternary ammonium group, tertiary amino group, secondary amino group and primary amino group, col. 4, lines 18-23. These anion exchange groups have at least nitrite ion. The anion exchange groups introduced onto the polymer side chain can be expected to not only adsorb water but also adsorb basic gases and remove negative charge particles, column 4, lines 18-45. It would have been obvious to one of ordinary skill in the art to consider that a water adsorbing/desorbing material in Patent 6,703,432 is a reactive solid reagent having a solid polymer backbone and a graft polymer chain having a reactive anion exchange group that imparts reactivity property, and wherein the reactive functional groups are reagents for at least of oxidation reaction or reduction reaction, and/or the anion functional groups can react with another functional group.

### ***Response to Arguments***

4. Applicant's arguments filed 08/17/2006 have been fully considered but they are not persuasive. Applicants argue that Patent 6,703,432 does not teach or suggest converting the anion exchange group on the graft polymer side chain into the reactive

Art Unit: 1711

functional groups, as required in Applicants' amended claims. However, the anion exchange groups are reactive functional groups, see col. 4, lines 42-45.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

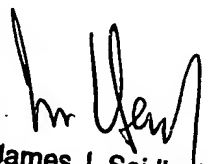


Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*O.A*

November 05, 2006

  
James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700